

### ABSTRACT

A noise cancellation system configured to isolate and process a common mode noise signal to generate a cancellation signal. The cancellation signal is combined with a differential signal to cancel unwanted differential mode noise that coupled onto the differential signal. In one embodiment a multi-channel communication system utilizes two or more channels that are in close proximity to other alien channels. A common mode signal isolation unit is configured to isolate common mode noise. The common mode noise signal is processed with a filter or other means to generate a cancellation signal. The cancellation signal is combined with the differential signal to thereby cancel noise that coupled onto the differential signal. The processed common mode noise signal may be made to approximate the differential mode noise signal. The common mode signal may be obtained from a center tap of a transformer, or a sensing winding of a three winding transformer.